

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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PCT/EP2003/010875



Applicant's or agent's file reference PF0000054919	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/010875	International filing date (<i>day/month/year</i>) 01 October 2003 (01.10.2003)	Priority date (<i>day/month/year</i>) 04 October 2002 (04.10.2002)
International Patent Classification (IPC) or national classification and IPC B27K 3/08, 3/15, 3/34, 3/42, 3/52, 5/06		
Applicant BASF AKTIENGESELLSCHAFT		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>3</u> sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand 09 March 2004 (09.03.2004)	Date of completion of this report 18 November 2004 (18.11.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/010875

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____ 1-8 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____ 1-19 _____, filed with the letter of _____ 16 July 2004 (16.07.2004)
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

/EP 03/10875

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-19	YES
	Claims		NO
Inventive step (IS)	Claims	1-19	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-19	YES
	Claims		NO

2. Citations and explanations

The following documents (D) have been cited as relevant to the present application:

D1: US-A-4 005 039 (GARDINER DUNCAN) 25 January 1977
(1997-01-25)

D2: US-A-4 396 391 (NORTH BERNARD F) 2 August 1983
(1983-08-02)

D3: SE 500 039 C (TRAETEKNIK CENTRUM) 28 March 1994
(1994-03-28)

D4: US-A-4 908 238 (VIGO TYRONE L ET AL.) 13 March
1990 (1990-03-13)

D5: US-A-5 384 012 (HAZARD JR SHERRILL J) 24 January
1995 (1995-01-24)

D6: US-B-6 265 5891 (LIPPERT FERDINAND ET AL.)
24 July 2001 (2001-07-24)

1. Content of the application

The subject matter of independent claim 1 is a method for producing a wooden body with enhanced surface hardness, wherein an untreated wooden body is impregnated with an aqueous solution of an impregnating agent consisting of a 1,3-bis(hydroxymethyl)-4,5-dihydroxyimidazolidin-2-one

(DMDHEU) modified with methanol, ethanol, n-propanol, isopropanol, n-butanol, n-pentanol, ethylene glycol, diethylene glycol, 1,2- and 1,3-propylene glycol, 1,2-, 1,3- and 1,4-butylene glycol, glycerol, polyethylene glycols of the formula $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_n\text{H}$, where n is from 3 to 20, or with mixtures thereof, and of a catalyst from the group comprising metal salts or ammonium salts, organic or inorganic acids or mixtures thereof, is dried and is then cured at elevated temperature.

Independent **claim 19** describes a wooden body having enhanced durability, dimensional stability and surface hardness, obtainable by the method defined in claim 1.

2. **Summary of the prior art and novelty**

Document D1 discloses an impregnating agent for enhancing the dimensional stability of wood, which agent consists of a polyol modified to contain alkyleneamido ether groups, an amino resin precursor such as 1,3-bis(hydroxymethyl)-4,5-dihydroxyimidazolidin-2-one, a catalyst, and a polar solvent capable of swelling wood.

The subjects of claims 1 and 19 differ from D1 at least in that D1 uses unmodified DMDHEU.

The subjects of **claims 1 and 19** are therefore **novel over D1.**

The remaining international search report citations (**D2 to D6**) differ from claims 1 and 19 in that they relate to cellulose fibres and are therefore further

removed from the treatment of (solid) wooden bodies.

The subjects of **claims 1 to 19** are therefore **novel** and satisfy the requirements of **PCT Article 33(2)**.

3. Inventive step

D1 must be considered to be the prior art closest to claim 1, since **D1** is the only document concerned with the treatment of wood.

The problem addressed by the present invention can therefore be considered that of developing a method whereby the hardness of wooden bodies is increased without cracking occurring and whereby the emission of formaldehyde is also reduced.

The modification of **DMDHEU** with the components referred to in claim 1 is neither evident nor obvious from **D1**. The fact that the problem is thereby solved is clearly demonstrated by practical examples 1 and 2 but was not foreseeable for a person skilled in the art proceeding from **D1**.

A person skilled in the art has no incentive to combine **D1** with another international search report citation, since **D2 to D6** do not relate to (solid) wooden bodies and so problems such as cracking during the drying process do not arise.

Claims 1 to 19 therefore satisfy the requirements of **PCT Article 33(3)**.

.../...

4. Industrial applicability

Claims 1 to 19 satisfy the requirements of PCT Article 33(4) in respect of the industrial applicability of the invention.